

been rewritten in view of what are considered to be significant differences between the cited reference and the independent claims, as will be pointed out below.

It is also noted that the Examiner has identified misnumbering of the last two claims and has renumbered them to avoid this error. As a result, the pending claims are 1 – 24.

THE REJECTION

Claims 1-5, 8 and 10-24 have been rejected under 35 U.S.C. 103(a) as unpatentable (obvious) over U.S. Patent No. 5,614,957 – Boyce et al.

In the rejection, each of the independent claims, apparatus claim 1, as well as method claims 11 and 18, have been rejected on the basis of Figure 4 of Boyce and the description thereof in columns 18 and 19 of the patent.

It is noted that certain aspects of Boyce, like the presently claimed invention, are concerned with decoding a high-definition (HD) video signal to produce one or more picture-in-picture reduced resolution images, typically along with a full screen, higher resolution main image. Specifically, Boyce states, at col. 18, lines 25 – 31 (referring to Fig. 4):

“The primary decoder 401 is responsible for decoding the main picture of a picture-in-picture image while the first and second decoders (402, 403) are responsible for generating separate images which will be displayed in a small area of the main picture. A separate reduced resolution decoder 402 or 403 is used for each additional image that is to be displayed in addition to the main picture.” (emphasis added).

At col. 18, lines 32 – 37, Boyce goes on to say:

“ The output of the primary decoder 401 and the reduced resolution decoders 402 , 403 is (sic. “are”) coupled to the input of a picture-in-picture video processing circuit which operates to combine the main picture with the reduced resolution pictures output by the reduced resolution decoders 402, 403 prior to the resulting combined picture being displayed.” (emphasis added).

In the rejection of the claims, the Examiner identifies the “resolution” associated with Boyce’s decoders 401, 402 and 403 as “resolution 1”, “resolution 2” and “resolution 3”, respectively. The Examiner acknowledges that, in describing the three resolutions, “Boyce does not specifically teach resolution 3 being greater than resolution 2” (as is required by all of the rejected claims, as will be pointed out below). Boyce specifically states, at col. 19, lines 25 – 30:

“ the illustrated PIP decoder arrangement is in no way limited to a specific degree of resolution with respect to the primary decoder 401 and only requires that the secondary decoder(s) 402, 403 be implemented as reduced resolution decoders as compared to the resolution supported by the primary decoder.” (emphasis added).

Finally, the Examiner, like Boyce, INCIDENTALLY mentions, without providing any specific information, that “Column 19, Lines 6 – 12 disclose a motion compensation circuit used in conjunction with the PIP decoder of Figure 4.” (Office Action, page 2, six lines from bottom of page).

It is quite clear from what Boyce says that there is NO particular relationship between resolutions 2 and 3 (the PIP resolutions) of Boyce since each of the decoders 402 and 403 is intended to produce its own INDEPENDENT reduced resolution, reduced size, PIP image. The

resolutions “2” and “3” can, in fact, be equal resolutions according to what Boyce states. Nevertheless, the Examiner concludes that Applicant’s different, specifically recited combinations of apparatus and method elements, with a specifically recited INTERDEPENDENT relationship between two reduced resolution image signals (e.g., “said image at an intermediate third resolution lower than said first resolution and higher than said reduced second resolution” – claim 1), are unpatentable over Boyce because “it would have been obvious to one of ordinary skill in the art to utilize decoders of varying (?) resolution to achieve greater PIP versatility” (page 3, lines 4 – 5 of Office Action).

THE CLAIMED INVENTION

Applicant’s apparatus claims (claims 1 – 10) relate to a combination of elements “to provide an image at a reduced second resolution for display” (claim 1, line 3). According to claim 1, a “first means ----for deriving said image of said reduced second resolution for display” includes:

- (1) an “enhanced motion-compensation-unit(MCU) processing means, and”
- (2) “second means for operating said enhanced MCU processing means with blocks of pixel values representing said image at an intermediate third resolution, etc” (emphasis added).

The claim goes on to specify that the third resolution is lower than the resolution of the first (e.g. main image) and higher than the resolution of the second image (e.g. a P-I-P image which is the one to be derived for display). Thus, the MCU which is INCLUDED in the recited “first means --- for deriving said image of--- second resolution” is OPERATED with blocks of pixel values representing the image at “an intermediate third resolution”.

Clearly, Boyce operates each reduced resolution decoder on its own and never discloses or suggests operating a decoder or a motion compensation unit associated with providing an image at a “second resolution” with image-representative pixel values “at a third resolution” as is claimed. Since Boyce never discloses anything about a “third resolution” in the context of a main image and a PIP image, it is respectfully submitted that there is no basis for holding Applicant’s sophisticated claimed arrangement to be obvious in view of Boyce.

Similarly, independent method claim 11 recites a method “to provide an image of a reduced second resolution” including “using data at an intermediate third resolution, lower than said first resolution but higher than said –second resolution, to supplement data from said –second resolution in forming predictions for motion compensation” which is neither disclosed nor suggested by Boyce. Here again, the sophisticated combination of using data at second and third resolutions in the context of providing motion compensation for an image of second resolution is far from anything disclosed or suggested by Boyce and should not be held to be obvious.

Independent method claim 13 recites a method which comprises “generating motion compensated pixel block data at said third resolution from ----- said second resolution supplemented by said ---third resolution data” which, once again, is neither disclosed nor suggested by Boyce and is clearly not obvious in view of Boyce..

The Examiner’s conclusion that “It would have been obvious to one of ordinary skill in the art to utilize decoders of varying resolution to achieve greater PIP versatility”, even if true, is respectfully submitted to be irrelevant in the context of the present invention. The gap between this statement and the particular claimed method steps and apparatus configurations relating to motion

compensation in displayed images as pointed out above is submitted to demonstrate the unobviousness and patentability of all of the independent claims, and hence of all of the claims, of this application.

It is respectfully submitted that the cited reference, either alone or in combination with what may be shown to be known by a person of ordinary skill, does not satisfy the requirements of teaching or suggesting modifying the reference in any manner to arrive at the claimed combinations. Furthermore, it is respectfully submitted that a prima facie case of obviousness is not made out on the basis of the Boyce reference since there is nothing which would suggest or motivate anyone to modify that reference in a way which would be consistent with the present claims. Finally, there would be no reasonable expectation of success for any purpose by modifying that reference. It is noted that the Examiner has acknowledged that the reference does not disclose all of the elements of Applicant's claims.

In view of the significant differences between each of the independent claims 1, 11 and 18 and the cited reference, all claims are submitted to be patentable over such reference. It is submitted that all of the claims are fully supported by the disclosure as originally filed.

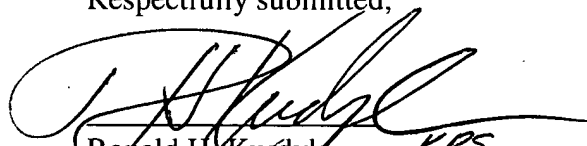


Serial No. 09/428,322

RCA 89,541

Reconsideration of the rejection of claims 1 – 24 and allowance thereof are respectfully requested in view of the foregoing amendments, the comments and the requirements of the law. A favorable action is requested.

Respectfully submitted,


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January 28, 2003

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FEB 10 2003

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I hereby certify that this amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to the Assistant Commissioner for Patents Washington, D.C. 20231 on:

January 28, 2003
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